

IN THE CLAIMS:

Claims 1-20 (canceled).

Claim 21 (new) A method of metallizing a solid polymer substrate comprising:

- a) generating radicals on the substrate surface by subjecting it to a gas plasma at an intensity level that ensures creation of radicals in the polymer surface without depolymerization of the solid polymer substrate;
- b) forming a layer on the substrate surface by a plasma enhanced polymerization process using one or more monomers selected from the group consisting of mono- and diacrylates, isocyanates, allylic compounds and vinylic compounds and mixtures thereof,
- c) providing a surface deposition using a PVD or CVD process to form a deposit of metal atoms on the layer, and
- d) optionally providing a metallization of the layer with an electroless bath, or by direct electrolytic metallization, when the metal deposit formed in c) has a thickness allowing electrolytic metallization.

Claim 22 (new) A method according to claim 21, wherein said monomers comprise

mono- and diacrylates selected from the group consisting of cyanoacrylate, 2-ethyl cyanoacrylate, acrylic acid, triethylene glycol diacrylate, glycidyl acrylate, and glycidyl methacrylate.

Claim 23 (new) A method according to claim 21, wherein said monomers comprise isocyanates selected from the group consisting of 1,4-diisocyanobutane and toluene 2,4-diisocyanate.

Claim 24 (new) A method according to claim 21, wherein said monomers comprise allylic compounds selected from the group consisting of allylene, allyl alcohol, allyloxymethylsilane, allylphenol, allylurea, and 1-allylthiourea (thiosine-amine).

Claim 25 (new) A method according to claim 21, wherein said monomers comprise vinylic compounds are selected from the group consisting of vinyl acetic acid, vinyl norbornene, vinyl pyrrolidone, vinyl trimethoxysilane, and vinyl trimethylsilane.

Claim 26 (new) A method according to claim 21, wherein the metal deposit comprises Pt, Ag, Pd, Cu, Sn, or Au.

Claim 27 (new) A method according to claim 21, wherein the monomers comprise one or more of cyanoacrylate and glycidyl methacrylate.

Claim 28 (new) A method according to claim 21, wherein the monomers comprise

glycidal methacrylate.

Claim 29 (new) A method according to claim 21, wherein step b) comprises treatment of the surface with a monomer vapor comprising 0.5 to 90 mole-% of 2-ethyl cyanoacrylate vapor.

Claim 30 (new) A method according to claim 21, wherein step b) comprises treatment of the surface with a monomer vapor comprising between 10 and 60 mole-% of 2-ethyl cyanoacrylate vapor.

Claim 31 (new) A method according to claim 9, wherein the monomer vapor is formed by vaporization of a monomer mixture that, prior to the vaporization, consists essentially of 2-ethyl cyanoacrylate, an acid having the partial vapor pressure in the plasma which is lower than the partial vapor pressure of 2-ethyl cyanoacrylate, and up to 40 weight-% of a filler.

Claim 32 (new) A method according to claim 31, wherein said acid has a partial vapor pressure in the plasma which is lower than half the partial vapor pressure of 2-ethyl cyanoacrylate.

Claim 33 (new) A method according to claim 32, wherein said acid is a polyphosphoric acid and is present prior to the vaporization in a concentration up to 10 weight-%.

Claim 34 (new) A method according to claim 21, wherein the polymer substrate is a polyolefine, an aryl-containing polymer, a diene-containing polymer, a silicone polymer, a fluorine-containing polymer, or copolymers thereof.

Claim 35 (new) A method according to claim 21, wherein the polymer substrate is polyethylene, polypropylene, polystyrene, polybutadiene, polyisoprene, silicone rubber, polytetrafluoroethylene, or copolymers thereof.

Claim 36 (new) A method according to claim 21, wherein the polymer substrate is an injection molded polymer component, a polymer fiber, a polymer thread or a polymer filler.

Claim 37 (new) A method according to claim 21, wherein the gas plasma is generated by excitation of the gas in a direct current (DC), low frequency (LF), audio frequency (AF), radio frequency (RF) or microwave generated electric field.

Claim 38 (new) A method according to claim 37 wherein the gas plasma is generated in a low frequency (LF) or an audio frequency (AF) generated electric field of a plasma system, said plasma system comprising an electrode arrangement having electrodes arranged so that every third electrode is connected to different voltages.

Claim 39 (new) A method according to claim 21, wherein in the plasma enhanced polymerization process of step (b), the monomers are present in a vapor and have a

monomer pressure of between 0.1 and 100000 Pa.

Claim 40 (new) A method according to claims 39, wherein the monomer pressure is between 10 and 1000 Pa.

Claim 41 (new) A method according to claim 21, wherein step a) is carried out for a period of between 0.01 and 1000 seconds, and step b) is carried out for a period of between 0.1 and 1000 seconds.

Claim 42 (new) A method according to claim 41, wherein step a) is carried out for more than 30 seconds and less than 1000 seconds, and step b) is started 10 to 30 seconds after step a).

Claim 43 (new) A method according to claim 41, wherein step a) is carried out for a period of between 10 and 60 seconds, and step b) is carried out for a period of between 10 and 200 seconds.

Claim 44 (new) A method according to claim 21, wherein step a) and step b) are carried out at the same temperature.

Claim 45 (new) A method according to claim 44, wherein the temperature in both step a) and step b) is between 250 and 450 K.

Claim 46 (new) A method according to claim 21, wherein step a) and step b) are carried out at the same total pressure.

Claim 47 (new) A method according to claim 46, wherein steps a) and b) are carried out of a total pressure of between 0.2 and 100000 Pa.

Claim 48 (new) A method according to claim 47, wherein the total pressure is between 10 and 1000 Pa.

Claim 49 (new) A method according to claim 21,

wherein (i) step b) starts before step a) provided that step b) does not terminate until step a) is started; (ii) step b) starts simultaneously with step a); (iii) step b) starts during step a), or (iv) step b) follows immediately after step a);

wherein (i) step c) starts before step b), (ii) step c) starts simultaneously with step b), (iii) step c) follows immediately after step b) or within 8 months after step b);

or

wherein (i) step d) follows step c) or (ii) step d) starts simultaneously with step c)

Claim 50 (new) A method according to claim 49, wherein step c) follows within 6 months after step b).

Claim 51 (new) A metallized polymer substrate obtained by the method according to

claim 21.

Claim 52 (new). The method according to claim 21, wherein the plasma enhanced polymerization process comprises adding a vapor comprising the monomers to the gas plasma.

Claim 53 (new). The method according to claim 21, wherein the plasma enhanced polymerization process consists essentially of adding a vapor comprising the monomers to the gas plasma.